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Commission to Study the Relationship Between Public Health and the Environment

(HB 393, 2003)

REPORT FOR YEARS 2003-2005 on Environmental Public Health Policy

November 2005

**NH Commission to Study the Relationship
Between Public Health and the Environment**

REPORT FOR YEARS 2003-2005

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I. THE MISSION OF THE COMMISSION

The mission of the Commission to Study the Relationship Between the Health and the Environment (hereafter known as the ‘Commission’) is to complete a study that “shall include, but not be limited to, the scope of medical and public health practices as they relate to environmental exposures such as, but not limited to: indoor and outdoor air pollution, lead and other heavy metals, food contamination, drinking water contamination, radiation, pesticides, and other public health risks identified by the New Hampshire Comparative Risk Project.” This report provides the results of our investigation into these important environmental health issues.

The Commission is an outgrowth of many important stakeholder projects that explored the relationship between human health and the changing quality of New Hampshire’s air, water, food and land. As identified in the mission statement above, a significant influence on the Commission’s work was the NH Comparative Risk Project that brought together environmental and health professionals during the mid-1990’s to discuss and rank the primary environmental risks for New Hampshire’s people, quality of life, and environment. The Commission has continued the work of the Comparative Risk Project in its efforts to gather the best available information, include many diverse stakeholders, and prioritize environmental health issues in a way that leads to effective public action. It is with the above understanding that the NH Legislature established this Commission and requested this report.

II. EXECUTIVE SUMMARY

In the three years since the 2002 report of the Commission to Study the Relationship Between Public Health and the Environment, the Commission has continued to evaluate the two distinct areas of ‘environment’ and ‘public health’ to better understand their relationship to each other, how to strengthen the relationship between the professionals who work in these complementary areas, and how to propose policies that would address the most important environmental health issues. A number of definitions for ‘environmental health’ were proposed, with the realization that environment and health continue to evolve as distinct professional communities with differing language and views. The Commission heard testimony from many experts regarding environmental health issues, and spent many hours discussing this material in advance of preparing this report. In regard to proposed actions to improve environmental health in New Hampshire, the Commission offered two types of recommendations in this report: cross-agency and program-specific.

‘Cross-Agency’ recommendations are provided to address the fact that most environmental health problems cannot be acted upon by just one agency in order to be effective. A reasonable way to address these broad problems is with policies that cut across many different areas and address the broad implications of environmental issues. A good example of a cross-agency initiative is ‘strategic planning,’ which can affect a large number of agencies, pollutants, diseases and resources at once.

The Commission developed the following five (5) recommendations for cross-agency policy initiatives in order to address the broad impact of health and environmental issues on citizens, government agencies, and private industry.

- **Continue the work of the Commission to study environmental health issues**
- **Develop a written strategic plan for environmental health**
- **Improve public health infrastructure and disease surveillance**
- **Measure and decrease exposures to environmental hazards**
- **Integrate “high performance” and environmental design into public buildings**

The Commission also proposed ‘Program-Specific’ recommendations. These recommendations affect single pollutants and single agencies regarding issues such as bioterrorism, food safety, indoor air quality, public buildings, toxic exposures, persistent organic pollutants (POPs), mercury, dioxin, lead, arsenic, radon, environmental tobacco smoke, MTBE, and outdoor air pollutants. And finally, the Commission developed a number of next steps for moving these recommendations into actions that improve environmental health in New Hampshire.

III. INTRODUCTION

New Hampshire has an abundance of clean water, fresh air and safe buildings that are protected by an evolving system of common sense, the rule of law, and the dedication of many professionals and citizens. In order to develop this system of protection, we had to struggle through an industrial era of heavily polluted rivers, skies, and land. The lessons of the past have only partially prepared us for the problems of the present and future. The rapid growth in our population, roads, cars and homes has led to an expanding demand on the environmental health system, while government and private resources for protection have been often stable or reduced. The challenge today is to preserve the system that protects us while ensuring that we do not exceed its capacity, nor miss the importance of emerging threats such as persistent pollutants, terrorism, and changing disease patterns.

For centuries, health and environmental professionals have created systems to track and manage communicable disease, remove dangerous wastes, and provide safe food, water and fresh air. In fact, the lack of ‘visible’ pollution and human environmental illness has led to a public perception that the era of environmental protection may be over. The public perceives environmental ‘safety’ enforced by police and firefighters as an important social institution, but environmental ‘health’ remains a less tangible need that requires an understanding of less obvious risks and illness.

To help place these and other risks in perspective, a Comparative Risk Project was undertaken in the mid to late 1990s to clarify the risks to the health of the New Hampshire population and the ecological risks to the environment. Through its deliberations, the Project identified the greatest human health risks to be exposure to dust and airborne particulates, second hand tobacco smoke, skin cancer from sun exposure, ingested lead, and allergens such as mold and pollen. For the ecological risks, the loss of land and water quality from increased urbanization were identified as major issues. The Project also identified major *sources* of risk: water and food, occupational exposure, recreation, industry, waste, land development and use, transportation, agriculture, forestry and energy production, and buildings and four key actions to reduce those risks: **promote** public and individual health, **reduce** the release of pollutants, **practice** sound land use, and **use** energy, resources, and materials safely and efficiently. Table 1 below outlines the relationship between the past recommendations of the NH Comparative Risk Assessment Report and the current Commission Report.

Table 1. Relationship between Recommendations in the NH Comparative Risk Report and the Current Legislative Commission Report.

NH Comparative Risk Project Risk Sources	Key Actions to Reduce Risk & Timeframe	Links to Recommendations in this Report
Water & Food Occupational Exposures	PROMOTE public health and individual health. 100+ years	-Continue the work of the Commission - Develop a written strategic plan for environmental health. - Improve public health infrastructure & disease surveillance.
Recreation Industry Waste	REDUCE the release of key pollutants.	- Measure, decrease, and eliminate exposures to environmental hazards
Land Development & Use Transportation Agriculture Forestry	PRACTICE sound land use	- Integrate environmental design into public buildings & projects
Energy Production Buildings	USE energy, resources and materials efficiently	- Integrate high performance design into public buildings & projects

New Hampshire has made significant accomplishments toward removing or limiting the sources of risk as well as reducing the risks themselves; however, a number of important challenges still need to be acted upon in the area of environmental health.

IV. ACCOMPLISHMENTS OF THE COMMISSION

In the three years since the completion of its November 2002 report, the Commission has achieved marked success in expanding the awareness and understanding of environment and public health issues that affect New Hampshire citizens in four specific areas:

- 1) continuing education on the relationship between environmental quality and public health;
- 2) legislation to support the design of high performance schools;
- 3) strengthening public health infrastructure
- 4) improving food safety, including inspection, training, and certification

Each are is described in more detail below:

- 1) Education: The Commission members held at least 16 individual meetings and heard testimony from over 10 different environmental health experts or citizen advocates in order to research and evaluate environmental and health priorities for New Hampshire. As a result, Commission members have made great strides toward a better understanding of the role that the environment plays in public health and the relationship between the quality of the environment and potential human health outcomes. That accomplishment was primarily the result of the intensive education of Commission members provided by a wide range of experts on a variety of areas, including the following:

Date	Topic	Presenter
3/10/03	Obesity, indoor smoking and cancer, better data integration to help reveal relationships of pollutants to disease, and indoor pollution in buildings	Commissioner Nick Vailas, NH DHHS
4/14/03	Methods of improving design and construction of the buildings reviewed recent survey on the condition of school buildings.	Ed Murdough, NH DOE
5/12/03	Discussed new bill being filed to improve performance qstandards in schools as part of school building aid grants.	
6/23/03	General planning session.	
7/28/03	Organizational meeting	
9/22/03	Radon in homes and schools	David Chase, NH DHHS

10/27/03	No minutes in file.	
11/24/03	Structure and need for greater communication and coordination in the public health system. Reviewed pending legislation concerning school construction aid and performance standards.	
1/26/04	Cancer and asthma	Nancy Ryan, NH Breast Cancer Assoc Diane Smogor, American Lung Association of New Hampshire
3/8/04	Health system	Patty Carney from DHMC.
4/19/04	No minutes in file but agenda was to discuss 2004 Commission work plan based on Nov. 1, 2002 report.	
5/17/04	DHHS reorganization Deficiencies in the public health system	Mary Ann Cooney, NH DHHS Dr. James Squires, Endowment for Health
6/28/04	Environment as an issue in the 2004 elections	David Grossman, Environment 2004
8/4/04	Meeting of Clean Air in Schools Subcommittee.	
8/12/04	Meeting of Public Health Infrastructure Subcommittee.	
8/16/04	Meeting of Clean Air in Schools Subcommittee.	
9/27/04	Turning Point Initiative	Jonathan Stewart, Community Health Institute
	Organization of the Division of Public Health Services	Neil Twitchell, NH DHHS
10/25/04	Presentation by Subcommittee on Public Health Infrastructure Presentation on antibiotic overuse in agriculture.	Dartmouth College speaker
11/29/04	Further report by the Subcommittee on Public Health Infrastructure. Persistent bioaccumulative toxics	Rick Rumba, NH DES
4/11/05	Presentation by DHHS employees Reorganization of DHHS Flu pandemic and state preparedness	Mary Ann Cooney, NH DHHS Dr. Jose Montero, NH DHHS
6/10/05	Meeting of Public Health Infrastructure Subcommittee.	

By convening these experts and presentations, the Commission was able to build a consensus among its members regarding an informal prioritization of areas of environmental health that need to be identified and addressed. These environmental public health priorities are reflected in both the cross-agency and program-specific recommendations outlined in this report.

- 2) High Performance Schools: The Commission also succeeded in drafting and passing a bill into law (HB129, Laws of 2005) that provides additional funding to support the design and construction of high performance schools that are cost effective to operate, healthy and productive for occupants, and environmentally sound.
- 3) Public Health Infrastructure: In addition, the Commission created a subcommittee on Environmental Health Infrastructure that reviewed policies affecting the training of local health/safety officials and made recommendations for improved training of municipal health officers.
- 4) Food Safety: As well, the Commission supported, and continues to support, the ongoing efforts to pass legislation encouraging improvements in food safety training and recommendations for food service handlers/providers.

V. RECOMMENDATIONS FOR CROSS-AGENCY POLICY INITIATIVES

The identification and resolution of environmental health problems requires the involvement of a wide range of local, state, and federal agencies. Due to the complex nature of these problems, initiatives that cut across many agencies and involve a wide variety of stakeholders will be an important part of future successes. In the past, environmental problems have often been dealt with by focusing on one pollutant, or one illness, usually by one agency, in an attempt to address what is often a problem that affects water, air, and land, as well as a variety of human health problems. These types of solutions are fragmented, produce a disorganized web of complex laws, and do not often address the root cause of an environmental problem. A solution to this problem is the development of cross-agency or multi-agency initiatives that address the broad problems of the relationship between public health and the environment. The Commission has developed a number of cross-agency initiatives that will provide the foundation for a long-term approach to managing environmental health issues, and these initiatives will also maintain their relevance as individual pollutants and illnesses are eliminated.

Therefore, based upon the input from many individuals and organizations, as well as the result of its own deliberations, the Commission sets forth the following recommendations:

- **Continue the work of the Commission to study environmental health issues**
- **Develop a written strategic plan for environmental health**
- **Improve public health infrastructure and disease surveillance**
- **Measure and decrease exposures to environmental hazards**
- **Integrate environmental design principles into public buildings**

1. Continue to work on environmental health issues via a legislative commission

The legislature should continue the work begun by the Commission to involve a wide variety of stakeholders, discuss complex environmental health issues, and develop policy initiatives that are effective in preserving New Hampshire's unique quality of life. New Hampshire's system of environmental health protection must be strengthened in order to stay abreast of changes to both the state's traditional needs and to emerging threats. We can only do that if environmental health leaders and the public have knowledge about the services we provide and their value to the health and welfare of the public. The job of the Commission will be to investigate environmental and health issues, clarify the role of environ-

mental health to other leaders, prioritize actions to be taken, and propose cost-effective strategies to strengthen the ability of environmental health practitioners to do their work well.

Cross-Agency Recommendation: The Commission recommends that the General Court make permanent the Commission in order to maintain a consistent dialogue on environmental public health issues between elected officials, state agencies, citizens, researchers, academia, and the private sector, and pursue the implementation of the policy initiatives identified in the following sections.

2. Develop a Written Strategic Plan for Environmental Health

Proper planning is critical if the state is to make the best use of the environmental resources at hand, as well as to direct attention to areas where more resources may be needed. Strategic planning is a very specific process that requires the analysis of stakeholder needs, development of a shared mission and vision, agreement on a set of measurable objectives, and an evaluation system put in place to monitor progress on the objectives. Strategic plans must also be crafted so that the leadership in each agency or sector will develop ‘buy in’ or commitment to making the plan work. A lack of leadership commitment will usually result in stagnation or failure. The success of a strategic plan for environmental health could be measured by better cooperation among agencies, support for existing programs, a reduction in duplicative programs, a decrease in certain human illnesses (lead poisoning, asthma, cancers, etc.), improvements in human health and wellness, or a decrease in specific pollutants that are important to New Hampshire.

Cross-Agency Recommendation: The Commission recommends that the General Court develop legislation that encourages state agencies to work together to create a single, written strategic plan for environmental health that will guide New Hampshire policy and action for the coming decades of rapid change, including but not limited to the following agencies: the Office of Energy and Planning, DHHS, DES, Fish & Game, DRED, DOT, Cultural Resources and Agriculture.

3. Improve Public Health Infrastructure and Disease Surveillance

New Hampshire should begin an effort to assess and improve the physical and human infrastructure for clean air, drinking water, waste management, and human health. The growth of New Hampshire’s population, coupled with the emerging threats of terrorism, is placing an increased demand on the State’s public health infrastructure as it exists today. It is vastly important that the State develop

and support *state, local and regional* public health networks that are adequately staffed by trained public health personnel. Environmental health professionals are needed to perform the dual function of meeting day-to-day needs of community food protection, sanitation, building inspections, environmental monitoring, and basic disease surveillance, as well as, responding to acute disease outbreaks, be they naturally occurring or the result of terrorist acts.

Cross-Agency Recommendation: Support and improve state public health infrastructure.

The Commission recommends that the existing Commission sub-committee continue its work to identify and improve the status of the environmental public health infrastructure at the state agency level by assessing the statewide workforce, resources, training, funding, and policies that support this sector of society in order to develop policies that will improve their effectiveness.

Cross-Agency Recommendation: Support and improve regional public health networks.

The Commission recommends that current regional public health departments be adequately staffed by trained public health professionals for the dual purposes of meeting day-to-day environmental health needs, while maintaining the capability to respond to disease outbreaks including food borne illnesses. Funding should be adequate to meet the present and emerging public health needs of these communities.

Cross-Agency Recommendation: Support and improve local public health infrastructure.

The Commission recommends that local health departments be supported with funding for adequate equipment and staff to address the expanding number of local residents, homes, restaurants and other facilities that require environmental or health oversight. Funding should be adequate to meet the present and emerging public health needs of these communities.

4. Measure and Decrease Exposures to Environmental Hazards

The legislature should continue to support existing programs that monitor the pollutants in our air, water, land and buildings, as well as, support innovative efforts to address emerging threats via human biomonitoring and innovative measurements of environmental pollutants. New Hampshire citizens are exposed to a continuously growing number of toxic, and potentially toxic, chemicals including exposure to lead, arsenic, mercury, MTBE, environmental tobacco smoke, and pesticides, as well as other pollutants in outdoor air. Concerted efforts through legislative support and rulemaking should be implemented to mitigate our exposure to these toxics and other substances identified as potentially harmful.

We also recommend the continued support of cost-effective monitoring of environmental hazards in the public and private sectors, and decrease of those specific pollutants and hazardous conditions that have the greatest impact on the public health of New Hampshire citizens. We recommend that the General Court pursue the following actions

Cross-Agency Recommendation: The Commission recommends concerted action through legislative support and rulemaking to develop an integrated “all hazards” approach to managing environmental pollutants or conditions in certain categories such as heavy metals, persistent organic pollutants, bioaccumulative toxins, pesticides, and other areas that do not lend themselves to a single-chemical management approach.

5. Integrate the Principles of “High Performance” and Environmental Design into Public Buildings

The Commission recognizes important trends such as the emergence of the indoor service economy and the increasing number of people who work in buildings with climate-controlled environments that require constant attention to temperature, humidity, and pollutant management. A significant number of public and private workplaces in New Hampshire have been identified as ‘sick buildings’ due to poor design, poor construction, improper use of materials, or lack of maintenance. While this report identifies many areas of environmental health that affect New Hampshire citizens, the Commission believes that this specific initiative provides an opportunity to improve health in a cost-effective manner. Linking public funding of public buildings to the use of “High Performance” standards (design guidelines that result in energy, economic, and environmental performance that is substantially better than standard practice) and environmental design can provide healthy and productive spaces with features that lower costs to heat, cool, light, ventilate, and maintain the structure, and are accessible by walking and biking as well as by vehicles. New Hampshire has the opportunity to provide leadership in this area.

Cross-Agency Recommendation: The Commission recommends that the General Court develop policies that link public funding and incentive programs of public projects to an integrated approach that encompasses environmental and energy-efficiency principles into the siting, design, construction, and renovation of roadways and public buildings and grounds such as schools, offices, museums, and libraries.

VI. RECOMMENDATIONS FOR PROGRAM SPECIFIC POLICY INITIATIVES

While the Commission has paid particular attention to cross-agency initiatives such as those listed above, the Commission has also identified the following program-specific actions that are in need of additional resources and support. Therefore, based upon the input from many individuals and organizations, as well as the result of its own deliberations, the Commission sets forth the following recommendations:

➤ Emergency Response and Terrorism

- Request the State Emergency Response Commission (SERC) to report on the environmental and public health impact of accidental and intentional releases of hazardous materials, including all relevant chemical, biological, and radiological materials.
- Assure adequate funding for state and local public health agencies to address the threat of chemical, radiological, and biological releases or terrorism.
- Create a state-level clearinghouse within the NH Department of Health and Human Services for public information concerning the state's ability to respond to hazardous materials releases or acts of terrorism.

➤ Disease Surveillance

- Support improved tracking of environmental hazards, human exposures, and human health effects via support for the NH Environmental Health Tracking Program.
- Evaluate the costs and benefits of requiring that specific environmentally related health conditions (i.e. asthma, Sick Building Syndrome [disease clusters related to building construction], carbon monoxide poisoning, heat and cold injury, etc.) be added to the list of health conditions with required notification of appropriate state officials.

➤ Food Safety

- Support increased food inspection capacity through the funding of additional food inspectors within the NH Division of Public Health Services.
- Require permanent food establishments to undertake mandatory food manager certification.
- Require temporary food establishments (e.g., local fairs) to be licensed and inspected for food safety.

- Support the education of food service workers and consumers about the dangers of food-borne illness and the annual impact of these illnesses on the citizens of New Hampshire. Strive for uniformity in the regulation of the food service industry statewide.

➤ **High Performance Public Buildings**

- Continue the financial and technical support through the NH Department of Education Office of School Building Aid and NH Partnership for High Performance Schools to school officials, local communities, and design and construction professionals.
- Explore the use of project certification systems such as LEED (leadership in Energy and Environmental Design) for new construction, expansion, or renovation of other public facilities.
- Develop a program for the abatement of water damage, mold, and fungi in rental units similar to the lead abatement requirements under RSA 130-A.
- Encourage enforcement by DHHS of RSA 200 to intervene in schools in extreme situations where the health of the students and staff is at risk.
- Reform the HB 329 Study Committee on indoor air quality and fire safety in public schools, to coordinate the development of standards for buildings.
- Support the funding of a training program for public Health Officers to respond to residential calls for indoor air quality assistance.

➤ **Decrease Exposure to Toxic Substances**

- Support and promote state-funded research to fill data gaps on human exposure: e.g., the DPHS Biomonitoring Program.
- Support pollution prevention activities/ initiatives with adequate funding.
- Promote activities that foster interaction among government agencies and other stakeholders that influence public health.
- Develop partnerships among environmental public health professionals to determine state environmental health priorities that lend themselves to human testing to determine body burden

- Create a valid data source for the new environmental health surveillance system to allow the linking of environmental hazards to body burden.
- Improve capacity and capability to detect and respond to a chemical terrorist attack

➤ **Persistent Bioaccumulative Toxic materials; Persistent Organic Pollutants (POPs)**

- Develop and thereafter adequately fund the biomonitoring capacity of the DPHS Biomonitoring Program.
- Utilize and expand partnerships between state agencies and nonprofit organizations to reduce the volume and toxicity of their wastes.
- Support the education of health care providers / organization regarding alternative purchasing options to favor less toxic materials.

➤ **Pesticides**

- Promulgate regulations requiring the use of Integrated Pest Management (IPM) practices in schools.
- Enhance education between state agencies, schools, and private organizations as to the proper use and disposal of pesticides, including less toxic alternatives.
- Collate state databases on the amounts and location of pesticide application
- Support the education of school personnel regarding Integrated Pest Management.

➤ **Mercury**

- Consider legislation to test farm fish for mercury.
- Increase awareness of the dangers of mercury in fish through the education of the public and of health care providers.

➤ **Dioxin**

- Consider legislation to build upon dioxin reductions required by RSA 125-N
- Coordinate with DES, DHHS, Dept. of Ag, NH dairy industry to coordinate public outreach and education regarding dioxin exposures.
- Support the education of the public regarding backyard trash burning.

- Support the education of health care providers/ organization regarding PVC plastics and alternative purchasing options

➤ **Lead**

- Appropriate additional funds to increase screening of young children for lead poisoning.
- Appropriate additional funds for lead abatement, and expand this coverage to include private residences.
- Utilize and expand partnerships between state agencies, grass roots organizations, local health entities, and HUD to help reduce conditions in older housing that are conducive to lead poisoning.
- Increase screening in Medicaid children through increased education of both parents and health care providers.
- Support the education of rental and private homeowners regarding the dangers of lead paint and safe abatement methods.

➤ **Arsenic**

- Encourage private well testing at real estate transfers.
- Continue the work of the Arsenic Consortium in educating the community as to the dangers associated with arsenic exposure.

➤ **Radon**

- Implement a study committee to consider requiring testing for radon in air and in well water at real estate transfers.
- Require all new and renovated public buildings that receive state funding to test for radon as part of the building commissioning process.

➤ **Second Hand Smoke**

- Use the tobacco master settlement agreement funds received by the state (\$46M in 2002) for the public health purposes for which they were intended.
- Support smoke free indoor air legislation and/or policy initiatives for all workplaces.

- Support or facilitate collaboration between state agencies, non-profit organizations, local coalitions, and health care providers to restore the Tobacco Use Prevention Fund.
- Support and adequately fund a comprehensive tobacco prevention and control program for the state, according to recommendations from the Centers for Disease Control and Prevention.
- Update RSA 155:77 to include language on public health and allow for local municipalities to apply more stringent rules to protect the citizens and employees within their towns, and reduce the known health risk from tobacco exposure, and the potential liability for employees who file workers compensation cases related to environmental tobacco smoke.

➤ **MTBE**

- Support the NH Department of Environmental Services in the inspection, enforcement, and response to oil and gasoline spills.
- Research into other oxygenates for gasoline.
- Support the education of the citizens of New Hampshire to decrease gas consumption.

➤ **Outdoor Air Pollutants**

- Require state agencies to purchase the most fuel-efficient and pollution controlled vehicles.
- Support legislation to reduce emissions of air pollutants that present the greatest threat to public health from all stationary and mobile sources.
- Support school bus anti-idling legislation.
- Initiate local and state policies that support bus managers in purchasing cleaner bus technology and/or fuels.
- Improve partnerships between DHHS and DES to work on decreasing exposures to outdoor air pollutants and issuing air pollution health advisories.
- Support research efforts on health implications of air pollutants, environmental transport, and air pollution health advisories.

VII. NEXT STEPS

In this report, the Commission to Study the Relationship Between Public Health and the Environment has made recommendations that span the continuum of environmental issues and public health concerns, both broad and specific, that involve the policies and practices of local, regional and state agencies and the programs housed within those entities. Turning those recommendations into action requires building momentum within a number of groups: legislature, state agencies, businesses, citizens and advocacy groups, philanthropy groups, and professional organizations. To that aim, the Commission recommends the following next steps:

- **Legislature:** The cross-agency and program-specific recommendations made in this report should be pursued via the appropriate standing committees in the House and Senate. Draft language for appropriate bills should be developed by individual legislators and introduced for discussion. The Commission should distribute this report to the organizations listed below.
- **State agencies:** Specific agencies identified in this report should direct their policy staff to review and discuss the proposed recommendations to determine if they have merit to be changed or moved forward.
- **Business:** Private companies that have an interest in improving the environment and public health via pollution reduction, health promotion, architecture or construction should review these recommendations to determine if there is an opportunity to use market forces to move these initiatives forward with or without the use of public funds.
- **Citizen and advocacy groups:** Citizens should select policy recommendations of interest to them, contact their elected representative, and encourage them to evaluate the feasibility of proposing policy improvement. Organizations who have a mission to protect the environment or promote public health should direct their policy staff to review the recommendations and support initiatives to turn these recommendations into actions.
- **Philanthropy groups:** Organizations who are dedicated to investing resources to improve the environment or public health should review the recommendations made here and apply their financial assets to leverage social action.

- **Professional organizations, academia, and local/community organizations:** Professional, academic, governmental, and local/community organizations supporting environmental and health fields, such as medicine, public health, building design/construction, waste management, etc., should select policy recommendations of interest to them, contact their elected representative, and encourage them to evaluate the feasibility of proposing policy improvement. Organizations that have a mission to protect the environment or promote public health should direct their policy staff to review the recommendations and support initiatives to turn these recommendations into actions.

APPENDIX A: Definitions of Environment and Health

A number of definitions of environment and health are presented below with the realization that environmental science and public health continue to evolve as separate professional communities with different core sciences (epidemiology versus engineering), distinct terminology, and views of how problems can be understood and solved. We have chosen a very inclusive definition of ‘health’ in order to allow for a broad discussion of the possible health outcomes related to environmental conditions. Contrarily, we have chosen a more restrictive definition of ‘environment’ in order to focus our efforts on the external physical factors that influence human health, such as pollution and physical conditions, and not social and physiological factors, such smoking and genetics, which would only increase the difficulty of evaluating the relationship between the environment and health.

In order to assist in the understanding of the relationship between public health and the environment, the Commission defines the following terms:

Health A state of physical, mental and social well-being and not merely the absence of disease or injury.
– *The World Health Organization (WHO)*

Public health The practice of protecting and improving the health of a community, based in the science of epidemiology, and applied via tools such as preventive medicine, health education, control of communicable diseases, application of sanitary measures, and monitoring of environmental hazards.” –
Adapted from Online Dictionary, www.answers.com

Environment The totality of circumstances surrounding an organism or group of organisms, especially the combination of external physical conditions that affect and influence the growth, development, and survival of organisms. – Online Dictionary, www.answers.com

Environmental health The art and science of protecting against environmental factors that may adversely impact human health or the ecological balances essential to long term human health and environmental quality.”